

Title (en)  
Ester derivative, liquid crystal composition and liquid crystal display element

Title (de)  
Esterderivat, Flüssigkristallzusammensetzung und Flüssigkristallanzeigeelement

Title (fr)  
Dérivé ester, composition liquide cristalline et élément d'affichage à cristaux liquides

Publication  
**EP 1010687 A2 20000621 (EN)**

Application  
**EP 00103442 A 19960222**

Priority  
• EP 96102672 A 19960222  
• JP 5982295 A 19950222  
• JP 13862595 A 19950512

Abstract (en)  
A novel liquid crystalline compound having a large dielectric anisotropy value, a small change in the threshold voltage depending upon temperatures, and an improved solubility in other liquid crystal materials at low temperatures, and a liquid crystal composition containing the compound are provided, which liquid crystalline compound is expressed by the formula (1) <CHEM> wherein R represents an alkyl group of 1 to 10 carbon atoms; l represents an integer of 1 to 9; m and n each independently represent 0 or 1; A1, A2 and A3 each independently represent trans-1,4-cyclohexylene group, 1,4-phenylene group or 1,3-dioxane-2,5-diyl group; Z1, Z2 and Z3 each independently represent -COO-, -(CH<sub>2</sub>)<sub>2</sub>- or a covalent bond at least one of which represents -COO-; X represents CF<sub>3</sub>, CF<sub>2</sub>H, CFH<sub>2</sub>, OCF<sub>3</sub> or OCF<sub>2</sub>H; Y1 and Y2 each independently represent H or F with the proviso that at least one of Y1 and Y2 is F; provided that when m + n = 1, then Z3 represents -COO-.

IPC 1-7  
**C07C 69/94**; **C09K 19/20**; **C09K 19/30**; **C09K 19/34**; **C09K 19/42**; **C09K 19/46**

IPC 8 full level  
**C07C 69/773** (2006.01); **C09K 19/20** (2006.01); **C09K 19/30** (2006.01); **C09K 19/42** (2006.01); **C09K 19/46** (2006.01)

CPC (source: EP KR US)  
**C07C 69/712** (2013.01 - KR); **C09K 19/2007** (2013.01 - EP US); **C09K 19/3001** (2013.01 - EP US); **C09K 19/3068** (2013.01 - EP US); **C09K 19/42** (2013.01 - EP US); **C09K 19/46** (2013.01 - EP US)

Cited by  
US7074462B1; WO0127221A1

Designated contracting state (EPC)  
AT BE CH DE ES FR GB IT LI NL SE

DOCDB simple family (publication)  
**EP 0738709 A2 19961023**; **EP 0738709 A3 19970716**; **EP 0738709 B1 20020123**; AT E212333 T1 20020215; CN 1136067 A 19961120; DE 69608013 D1 20000608; DE 69608013 T2 20001102; DE 69618700 D1 20020314; DE 69618700 T2 20020912; EP 0728830 A2 19960828; EP 0728830 A3 19960904; EP 0728830 B1 20000503; EP 1010687 A2 20000621; KR 100294288 B1 20010917; KR 960031424 A 19960917; US 5755994 A 19980526; US 5820784 A 19981013

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